CLAIMS

What is claimed is:

5   1. A method of providing user input information to a plurality of independent, concurrent applications, comprising:

for each application, generating a respective subscription message and providing the subscription message to a device receiving input of a predetermined type from a user, the
10 subscription message for each application identifying a respective pattern of user input upon whose occurrence the application is to be notified; and

at the device, (1) monitoring the user input to identify the occurrence of the respective patterns identified in the
15 subscription messages, and (2) upon the occurrence of the user input pattern identified in a given subscription message, notifying the corresponding application via a signaling channel linking the application with the device.

20 2. A method according to claim 1, wherein the device receives the user input directly.

3. A method according to claim 2, wherein the device is a telephone.

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4. A method according to claim 3, wherein the user input received by the device comprises key presses.

5. A method according to claim 3, wherein the user input received
30 by the device comprises speech.

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6. A method according to claim 1, wherein the device obtains the user input from a media stream between the user and the applications.

5   7. A method according to claim 1, wherein the input of the predetermined type from the user comprises key presses.

8. A method according to claim 1, wherein the user input comprises speech.

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9. A method according to claim 1, wherein the device comprises a touch-sensitive screen and the user input comprises touches and/or strokes on the screen.

15   10. A method according to claim 1, wherein the user input is provided by a human user.

11. A method according to claim 1, wherein the user input is provided by a computer.

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12. A method according to claim 1, wherein each subscription message optionally includes a persistence indicator indicating that the device is to notify the application for each of multiple occurrences of the user input pattern identified in the message,

25   and further comprising, at the device, (1) determining for each subscription message whether the persistence indicator is included, (2) if the persistence indicator is included, then repeating the monitoring and notifying steps for a subsequent occurrence of the user input pattern, and (3) if the persistence

30   indicator is not included, then ceasing the monitoring for the input pattern upon the first notification of the application that the user input pattern has occurred.

13. A method of providing user key press information to a plurality of independent, concurrent applications, comprising:

for each application, generating a respective subscription message and providing the subscription message to a device

5   receiving key presses from a user, the subscription message for each application identifying a respective pattern of user key presses upon whose occurrence the application is to be notified; and

at the device, (1) monitoring the key presses from the user

10   to identify the occurrence of the respective user key press patterns identified in the subscription messages, and (2) upon the occurrence of the user key press pattern identified in a given subscription message, notifying the corresponding application via a signaling channel linking the application with the device.

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14. A method according to claim 13, wherein the device receives the input key presses directly.

15. A method according to claim 14, wherein the device is a

20   telephone.

16. A method according to claim 13, wherein the device obtains the input key presses from a media stream between the user and the applications.

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17. A method according to claim 13, wherein the key presses are generated by a human user.

18. A method according to claim 13, wherein the key presses are

30   generated by a computer.

19. A method according to claim 13, wherein each pattern of input key presses is identified in a respective one of the subscription messages in the form of a respective digit regular expression.

20. A method according to claim 19, wherein each digit regular expression includes one or more elements taken from the following classes: a specified digit, a wildcard digit, a multiple digit selector, a range of digits, and a repetition of digits.

21. A method according to claim 19, wherein each digit regular expression optionally includes a tag to be provided back to the application as part of notifying the respective application of the occurrence of the pattern specified in the digit regular expression.

22. A method according to claim 13, wherein monitoring the key presses from the user comprises continually comparing the key presses to the patterns identified in the subscription messages.

23. A method according to claim 22, wherein the comparing is done on a shortest-match basis.

24. A method according to claim 22, wherein the comparing is done on a longest-match basis.

25. A method according to claim 22, wherein the comparing is done on a most-specific-match basis.

26. A method according to claim 13, wherein the key presses from the user are buffered within the device.

27. A method according to claim 26, wherein the key presses are buffered in a circular buffer.

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28. A method according to claim 26, wherein the key presses are discarded from a buffer after a fixed time period.

5   29. A method according to claim 26, wherein the key presses are discarded from a buffer after a variable time period.

30. A method according to claim 26, further comprising, within the device, quarantining key presses occurring after an application
10 has been notified and before receiving a subsequent subscription message.

31. A method according to claim 30, wherein the subsequent subscription message optionally includes a flush indicator
15 indicating that any quarantined digits are to be flushed, and further comprising, at the device, (1) determining for each subscription message whether the flush indicator is included, (2) if the flush indicator is included in a given subscription message, then disregarding any quarantined digits in determining
20 whether key presses from the user match the pattern specified in the subscription message, and (3) if the flush indicator is not included in the given subscription message, then including the quarantined digits in determining whether key presses from the user match the pattern specified in the subscription message.
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32. A method according to claim 13, further comprising, at the device upon notifying an application via the respective signaling channel of the occurrence of the respective pattern of user key presses, suppressing the transmission of the user key presses on a
30 media channel on which media emanating from the user is generally transmitted by the device.

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33. A device for receiving input of a predetermined type from a user and providing corresponding user input information to a plurality of independent, concurrent applications, the device being operative (1) to receive, for each application, a respective subscription message identifying a respective pattern of user input upon whose occurrence the application is to be notified, (2) to monitor the user input to identify the occurrence of the respective patterns identified in the subscription messages, and (3) upon the occurrence of the user input pattern identified in a given subscription message, to notify the corresponding application via a signaling channel linking the application with the device.

34. A device according to claim 33, operative to receive the user input directly.

35. A device according to claim 34, comprising a telephone.

36. A device according to claim 35, wherein the user input received by the device comprises key presses.

37. A device according to claim 35, wherein the user input received by the device comprises speech.

38. A device according to claim 33, operative to obtain the user input from a media stream between the user and the applications.

39. A device according to claim 33, wherein the input of the predetermined type from the user comprises key presses.

40. A device according to claim 33, wherein the user input comprises speech.

41. A device according to claim 33 comprising a touch-sensitive screen, and wherein the user input comprises touches and/or strokes on the screen.

5   42. A device according to claim 33, wherein the user input is provided by a human user.

43. A device according to claim 33, wherein the user input is provided by a computer.

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44. A device according to claim 33, wherein each subscription message optionally includes a persistence indicator indicating that the device is to notify the application for each of multiple occurrences of the user input pattern identified in the message,
15   and wherein the device is further operative: (1) to determine for each subscription message whether the persistence indicator is included, (2) if the persistence indicator is included, then to repeat the monitoring and notifying for a subsequent occurrence of the user input pattern, and (3) if the persistence indicator is
20   not included, then to cease the monitoring for the input pattern upon the first notification of the application that the user input pattern has occurred.

45. A device for receiving key presses from a user and providing
25   corresponding user key press information to a plurality of independent, concurrent applications, the device being operative: (1) for each application, to receive a subscription message identifying a respective pattern of user key presses upon whose occurrence the application is to be notified, (2) to monitor the
30   key presses from the user to identify the occurrence of the respective user key press patterns identified in the subscription messages, and (3) upon the occurrence of the user key press pattern identified in a given subscription message, to notify the

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corresponding application via a signaling channel linking the application with the device.

46. A device according to claim 45, operative to receive the input key presses directly.

47. A device according to claim 46, comprising a telephone.

48. A device according to claim 45, wherein the device obtains the input key presses from a media stream between the user and the applications.

49. A device according to claim 45, wherein the key presses are generated by a human user.

50. A device according to claim 45, wherein the key presses are generated by a computer.

51. A device according to claim 45, wherein each pattern of input key presses is identified in a respective one of the subscription messages in the form of a respective digit regular expression.

52. A device according to claim 51, wherein each digit regular expression includes one or more elements taken from the following classes: a specified digit, a wildcard digit, a multiple digit selector, a range of digits, and a repetition of digits.

53. A device according to claim 51, wherein each digit regular expression optionally includes a tag to be provided back to the application as part of notifying the respective application of the occurrence of the pattern specified in the digit regular expression.

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54. A device according to claim 45, operative when monitoring the key presses from the user to continually compare the key presses to the patterns identified in the subscription messages.

55. A device according to claim 54, wherein the comparing is done on a shortest-match basis.

56. A device according to claim 54, wherein the comparing is done on a longest-match basis.

57. A device according to claim 54, wherein the comparing is done on a most-specific-match basis.

58. A device according to claim 45, comprising a buffer operative to buffer the key presses from the user.

59. A device according to claim 58, wherein the buffer is a circular buffer.

60. A device according to claim 58, operative to discard the key presses from the buffer after a fixed time period.

61. A device according to claim 58, operative to discard the key presses from the buffer after a variable time period.

62. A device according to claim 58, further operative to quarantine key presses occurring after an application has been notified and before receiving a subsequent subscription message.

63. A device according to claim 62, wherein the subsequent subscription message optionally includes a flush indicator indicating that any quarantined digits are to be flushed, and wherein the device is further operative: (1) to determine for each

subscription message whether the flush indicator is included, (2) if the flush indicator is included in a given subscription message, then to disregard any quarantined digits in determining whether key presses from the user match the pattern specified in the subscription message, and (3) if the flush indicator is not included in the given subscription message, then to include the quarantined digits in determining whether key presses from the user match the pattern specified in the subscription message.

64. A device according to claim 45, further operative, upon notifying an application via the respective signaling channel of the occurrence of the respective pattern of user key presses, to suppress the transmission of the user key presses on a media channel on which media emanating from the user is generally transmitted by the device.